

A MINOR CONTRIBUTION TO SOLVING THE FILE-DRAWER PROBLEM

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ABSTRACT

In order to contribute something to the solution of the file-drawer problem in meta-analyses, 11 PK experiments with dice that gave insignificant results are reported on. Those experiments, carried out between 1967 and 1969, comprised 132,000 throws with a high-precision die from a cup and yielded 22,072 hits; deviation: +72.

INTRODUCTION

Having myself been an enthusiastic dice-thrower, I read with much interest the paper by Radin and Ferrari (1991), wherein the authors describe a meta-analysis carried out on the results of PK experiments with dice.

As usual in meta-analyses, behind the impressive results small question marks must be placed. The cause is an irritating problem: 'How many studies where the results were insignificant, or even significant in a direction that was not wanted, are still lying unpublished in file drawers?' The answer can be given in a simple way, when our brave Rhinean dice-throwers take the trouble to dive into their files and publish yet their insignificant and not-wished-for results. I shall set the example with 11 experiments (Series 21-31) carried out between 1967 and 1969. Reports on Series 1-20 and 32-91 can be found elsewhere (Breederveld, 1969, 1976a, 1976b, 1988).

EXPERIMENTAL

General

A precision die (Mason & Co, Chicago) was used. The die was hand-thrown from a cup onto a horizontal surface. The outcomes of the throws were immediately recorded in matrices of 10 x 10. The author worked alone as his own subject. Each series comprised 12,000 trials.

Statistical Analyses

The methods of statistical analysis were planned beforehand and comprised for each series: number of hits and corresponding values for p and (eventually) p -difference of series, first halves of the series, second halves of the series, combined first halves of the runs, combined second halves of the runs (not for the Series 25-31), combined first halves of groups of 100 trials, combined second halves of groups of 100 trials, combined left halves of groups of 100 trials, combined right halves of groups of 100 trials. In addition, the hits for each target face and the frequencies of the numbers that were thrown were calculated.

Series Nos. 21-24

Runs of 600 trials; 100 trials for the 1-face, 100 trials for the 2-face, and so on. One run daily.

Series No. 25

Series 25 also comprised 20 x 100 trials for each die face and the target sequence was also 100 trials for the 1-face, 100 trials for the 2-face, and so on, until 12,000 throws had been done. In Series 21–24 a run always comprised 600 trials. In Series 25, however, the length of a run was dependent on success. When a group of 100 trials yielded 16 hits or fewer (MCE being 16.7), the run was terminated. On the next experimentation day, the series was continued with the target whose turn it was, until again a group of 100 trials appeared with 16 hits or fewer. Only one run daily.

The underlying idea is that there are 'good' and 'bad' experimentation periods.

In principle, the minimum length of a run is one group of 100 trials; that occurred several times. The maximum length of a run is 120 groups of 100 trials. That must then be the first one and, of course, the only one! To the regret of the author, this situation did not materialize; the best run comprised only 11 groups of 100 trials.

To elucidate the above, an example. On the first experimentation day (9/4/1968) 100 trials for the 1-face yielded 24 hits and 100 trials for the 2-face only 14 hits. So here the run was terminated.

On the second day (10/4/1968), the first target was, of course, the 3-face. 100 trials with 19 hits; 100 trials for the 4-face gave 17 hits and 100 trials for the 5-face only 14 hits; this was the end of the run.

Series Nos. 26–30

Sequence of target faces as usual. A run was continued until a target face showed up where for 100 trials a number of hits of 17 or more was obtained. Then dice-throwing went on in groups of 100 trials with the same target face till such a group of 100 trials had only 16 hits or fewer.

This was the end of the run. When, for example, the successful face was 5, then, on the next experimentation day, the first target face was, of course, 6. When, on a certain day, all six faces gave a negative result, the run was terminated. Only one run daily.

The underlying hypotheses are:—

- 1 There are 'good' and 'bad' experimentation periods.
 - 2 On a certain day, the experimenter has a preference for a certain die-face.
- The numbers of times that certain faces were the target faces were counted.

Series No. 31

Series Nos. 26–30 comprised 5 x 120 = 600 groups of 100 trials with a certain die face as target. It would have been expected that each face would have been the target face about 100 times. On counting, however, it appeared; that the 3-face was the target face only 80 times. And these 8000 trials yielded only 1241 hits; MCE = 1333; p (two-tailed) = 0.006. This suggests that, in these experiments, the experimenter does not like the 3-face. Consequently Series No. 31 was carried out as Series 26–30, but omitting the 3-face as target.

TABLES

Table 1 gives the main analysis: the numbers of hits of each series. In Table 2 an overview is given of subsidiary analyses. Table 3 shows the numbers of hits for each target face. Table 4 gives the frequencies of the numbers that were thrown.

Table 1

Numbers of Hits of Series 21–31

<i>series</i>	<i>number of hits</i>	<i>series</i>	<i>number of hits</i>
21	2051	27	2018
22	2018	28	2052
23	2034	29	1990
24	1986	30	1974
25	1942	31	1959
26	2048	<i>Total</i>	22072

Table 2

Subsidiary Analyses

<i>Total number of hits in</i>	
First halves of series	11,054
Second halves of series	11,018
First halves of runs (Series 21–24)	3,991
Second halves of runs (Series 21–24)	4,098
First halves of groups of 100 trials	10,988
Second halves of groups of 100 trials	11,084
Left halves of groups of 100 trials	11,185
Right halves of groups of 100 trials	10,887

Table 3

Hits for Each Target Face

<i>target face</i>	<i>number of trials</i>	<i>number of hits</i>	<i>MCE</i>
1	23,400	3969	3900
2	22,400	3675	3733
3	18,000	2923	3000
4	22,200	3755	3700
5	24,300	4094	4050
6	21,700	3656	3617

Table 4

Frequencies of the Numbers that Were Thrown

1	2	3	4	5	6
21,979	21,820	21,914	22,050	22,122	22,115

Warande 48
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REPORTS FROM OTHER COUNTRIES

by CHRISTOPHER DWYER

ITALY

Luce e Ombra, Year 98, No.1, Jan–March 1998

An article by Silvio Ravaldini has the intriguing title “Tony Blair and the last English ‘witch’”. Its connection with Tony Blair, however, is minimal, being limited to citing a newspaper report that his government is preparing to rehabilitate Mrs Helen Duncan. The English abstract is more cautiously worded—the government “would appear to be in favour of a review of the Duncan trial”.